Electronics Technicians Association International (ETA-I)

DANTES Test Centers' Authorization

The Electronics Technicians Association International (ETA-I) authorizes military installations with DANTES Test Centers to administer the ETA-I Certification Examination for Electronics Technicians or FCC Commercial Radio Operators License.

Background

In 1978, ETA-I was established as an international, nonprofit professional organization dedicated to the advancement of electronics technicians. ETA-I encourages the advancement of electronics by offering a certification examination program designed to evaluate professional competency in more than 20 specialized areas of electronics technician work.

Address

ETA-I Address

ETA-I
5 Depot Street
Greencastle, IN 46135

Phone: (765) 653-4301
Toll Free: (800) 288-3824
Fax: (765) 653-4287

Description

Levels of Certification for Electronics Technicians

The four levels of certification for electronics technicians are:

- Associate Certified Electronics Technician (AST)
- Journeyman Certified Electronics Technician (CET)
- Senior Certified Electronics Technician (CETsr)
- Master Certified Electronics Technician (CETma)

Description, Continued

Associate Certified Electronics Technician (AST)

A technician, electronics student, or electronics technicians with **less than two years of combined work and/or electronics training** may apply for the Associate exam. This exam is the basic **core CET exam** of the full credit journeyman certification exam. The Associate exam is a multiple choice exam covering basic electricity, electronics, math, AC & DC circuits, transistors, and basic troubleshooting skills. It is a 2-hour exam and the applicant must receive a 75% score to pass. The ETA-I competency requirements for Associate Certified Electronics Technician (AST) are:

- Amplifiers
- Antenna Theory
- Block Diagrams – Schematics
- Cabling
- Components
- Computers & Digital Concepts
- Fiber Optics
- Hand Tools
- Interfacing
- Mathematics
- People Relations
- Safety
- Satellite, Wireless & Data Communications
- Soldering
- Electronic Circuit

Description, Continued

Certified Electronics Technician Specialty Areas

The 20 specialty areas for electronics technicians are:

• Avionics (AVN)	• Certified Satellite Installer (CSI)
• Biomedical Electronics (BMD)	• Fiber Optics Technician (FOT)
• Computer Service Technician (CST)	• Fiber Optics Installer (FOIC)
• Consumer Electronics (CSM)	• Industrial Electronics (IND)
• Certified Network Computer Technician (CNCT)	• Wireless Communications (WCM)
• Certified Network Systems Technician (CNST)	• Telecommunications (TCM)
• Certified Web Specialist (CWS)	• Radar (RAD)
• Certified Personal Communications Systems – Cellular (PCS-C)	• Audio/Video Distribution (CSI)
• Data Cabling Installer Certification (DCIC)	• Certified Customer Service Specialist (CSS)
• Certified Alarm Systems Technician (CAST)	• Certified E-Commerce Developer (CECD)

Journeyman – Certified Electronics Technician (CET)

A technician with **two or more years of combined work and/or electronics training** must take the Journeyman exam. To be a fully certified Electronics Technician, an entire certification exam must be passed, which consists of the **core CET exam plus one journeyman option**. Passing score is 75%.

Senior Certified Electronics Technician (CETsr)

A technician with **six or more years of combined work and/or electronics training** may apply for the Senior level exam. To be a Certified Electronics Technician Senior (CETsr), an entire certification exam must be passed which consists of the **core CET exam plus one journeyman option**. Passing score is 85%.

Description, Continued

Master Certified Electronics Technician (CETma)

A technician with **six or more years of combined work and/or electronics training** may apply for the Master level exam. To be a Certified Electronics Technician Master CETma), an entire certification exam must be passed which consists of the **core CET exam, plus six journeyman options**.

Avionics Electronics Technician (AVN)

The ETA-I competency requirements for Avionics Electronics Technician (AVN) are:

- Avionics Systems
- Cables and Cabling
- Computers and Digital Concepts
- Amplifiers
- Interfacing
- Antennas and Transmission Lines
- Components
- Mathematics
- Network Infrastructures and Topologies
- People Relations
- Optical Wiring
- Safety
- Test Equipment and Tools
- Satellite Communications
- Troubleshooting

Description, Continued

Biomedical Electronics Technician (BMD)

The ETA-I competency requirements for Biomedical Electronics Technician (BMD) are:

- The Human Nervous System
- Medical Electrodes
- Cables and Cabling
- Computer
- Transducers
- Medical Electronics Safety
- Hemodialysis Equipment
- Networking
- Medical Ultrasound Instruments
- Mathematics
- Building Wiring
- Optical Wiring
- Radiology
- Test Equipment and Tools
- WANs and LANs
- Medical Ultrasound Instruments
- Troubleshooting
- Operating Room Familiarization
- Instrumentation – Respiratory
- Instrumentation – The Medical Laboratory
- Electrosurgery Generators
- Intensive and Coronary Care Units
- Cardiac Support System
- Bioelectric Amplifiers

Description, Continued

Computer Service Technician (CST)

The ETA-I competency requirements for Computer Service Technician (CST) are:

- Computer Assembly and Disassembly
- Configuring
- Components
- Computers & Digital Concepts
- Cabling
- Block Diagrams, Schematics and Flow Charts
- Bus
- DOS
- File Management
- Networking
- Troubleshooting
- Hand Tools – Soldering
- Satellite, Wireless & Data Communications
- Fiber Optics – Telecommunications
- Mathematics – Profitability
- Software
- People Relations
- Peripherals
- Portables
- Ports
- Preventive Maintenance

Description, Continued

Consumer Electronics Technician Specialty (CSM)

The ETA-I competency requirements for Consumer Electronics Technician Specialty (CSM) are:

- Antenna Theory
- Hand Tools
- Cabling
- Soldering
- Fiber Optics
- Mathematics
- Components
- Amplifiers
- Computers & Digital Concepts
- Interfacing
- Troubleshooting
- People Relations

Certified Network Computer Technician (CNCT)

The ETA-I competency requirements for Certified Network Computer Technician (CNCT) are:

Operating System

- Function, Structure, Operation, and File Management
- Installation, Configuration/Upgrading, Memory Management
- Diagnosis and Troubleshooting
- Networks
- Internet

Hardware

- Installation, Configuration, and Upgrading
- Diagnosing and Troubleshooting
- Safety and Preventive Maintenance
- Motherboard, Processors, Memory
- Printers
- Portable Systems
- Basic Networking

Description, Continued

Certified Network Systems Technician (CNST)

The ETA-I competency requirements for Certified Network Systems Technician (CNST) are:

- Computer Network Terminology
- Network Administration
- Wide Area Networks and Devices Used to Extend Networks
- Network Architectures
- Computer Network Types and Classifications
- Network Services
- Network Operations
- The OSI Reference Model
- Troubleshooting
- Network Server and Workstation Computer System Hardware
- Network Operating Systems
- Disaster Planning for Networks

Certified Web Specialist (CWS)

The ETA-I competency requirements for Certified Web Specialist (CWS) are:

- History and Infrastructure of the Internet
- TCP/IP
- Connections to the Internet
- Browsers
- HTML
- Web Server
- E-mail
- Newsgroups
- Unix
- Network Security
- File Formats

Description, Continued

Certified PCS-Cellular Technician (PCS-C)

The ETA-I competency requirements for Certified PCS-Cellular Technician (PCS-C) are:

- PCS-C Concepts
- RF Transmit, propagate and receive principles
- Technical Procedures
- Technical Capabilities
- Test Equipment
- Knowledge of Components
- Antennas
- Frequency Bands
- Customer Relations
- Safety and Regulations

Data Cabling Installer Certification (DCIC)

The ETA-I competency requirements for Data Cabling Installer Certification (DCIC) are:

- Basic Electricity
- Data Communications Basics
- Definitions, Symbols, and Abbreviations
- Cable Construction and Types
- Cable Performance Characteristics
- Cabling Standards
- Basic Network Topologies
- Basic Network Architectures
- National Electric Code
- Cabling System Components
- DCIC Installation Tools
- Connectors and Outlets
- Cabling System Design
- Cabling Installation
- Connector Installation
- Cabling Testing and Certification
- Cabling Troubleshooting
- Documentation

Description, Continued

Certified Alarm – Surveillance Technician (CAST)

The ETA-I competency requirements for Certified Alarm – Surveillance Technician (CAST) are:

- Technology and Configuration
- Alarms
- Cameras and Intercoms
- Components
- Cabling & Connectors
- Interfacing
- Locks
- Block Diagrams and Schematics
- Troubleshooting
- Computers & Digital Concepts
- Hand Tools – Soldering
- Data Communications
- Fiber Optics – Telecommunications
- Mathematics
- Software
- People Relations

ADDITIONAL competencies required for CAST(C)

- Bank Security
- ATMS
- Key Cards
- Money Machines – Cash Counters
- Satellite and Microwave Communications

Description, Continued

Certified Satellite Installer (CSI)

The ETA-I competency requirements for Certified Satellite Installer (CSI) are:

- Antenna Theory
- Amplifiers
- Components
- Satellite Communications
- Reflectors
- Feedhorns
- LNBs & LNBFs
- Cabling
- Installation
- Satellite Receivers
- Interfacing
- MATV & SMATV Systems
- Fiber Optics
- Troubleshooting Satellite Systems
- Customer Relations

Description, Continued

Fiber Optic Technician (FOT)

The ETA-I competency requirements for Fiber Optic Technician (FOT) are:

- Principles of Fiber Optic Transmission
- Basic Principles of Light
- Optical Fiber Construction and Theory
- Optical Fiber Characteristics
- Advantages of Fiber over Copper
- Fiber Optic Cables
- Sources
- Detectors
- Connectors
- Passive Components
- Types of Splicing
  - Mechanical Splicing
  - Fusion Splicing
- Cable Installation and Hardware
- Fiber Optic Link
- Optical Fiber Measurement and Testing
- Link and Cable Testing

Description, Continued

Certified Fiber Optics Installer (CFOI)

The ETA-I competency requirements for Certified Fiber Optics Installer (CFOI) are:

- History of Fiber Optic Cabling
- Principles of Fiber Optic Transmission
- Fiber Optic Cabling Safety
- Basic Principles of Light
- Optical Fiber Construction and Theory
- Optical Fiber Characteristics
- Advantage of Fiber over Copper
- Optical Cables
- Lightsources
- Detectors
- Connectors
- Passive Components
- Types of Splicing
  - Mechanical Splicing
  - Fusion Splicing
- Cable Installation and Hardware
- Fiber Optic Link
- Optical Fiber Test Equipment
- Optical Fiber Measurement and Testing

Description, Continued

Certified Industrial Electronics Technician (IND)

The ETA-I competency requirements for Certified Industrial Electronics Technician are:

- Amplifiers
- Components
- Optical Wiring
- Interfacing
- Block Diagrams and Schematics
- Test Equipment and Tools
- Mathematics
- Computers and Digital Concepts
- Software
- Safety
- Satellite, Wireless, and Data Communications
- Cabling
- Troubleshooting
- Motors
- People Relations

Wireless Communications Electronics Technician (WCM)

The ETA-I competency requirements for Wireless Communications Electronics Technician (WCM) are:

- Amplifiers – Receivers
- Components
- Cabling and Antennas
- Interfacing
- Block Diagrams and Schematics
- Troubleshooting
- Computers & Digital Concepts
- Hand Tools – Soldering
- Satellite & Data Communications
- Fiber Optics – Telecommunications
- Mathematics
- Software
- People Relations

Description, Continued

Telecommunications Electronics Technician (TCM)

The ETA-I competency requirements for Telecommunications Electronics Technician are:
- Analog Telephony
- Cables and Cabling
- Computer
- Digital Telephony
- Distribution Methods
- Equipment
- Interfacing
- Internet
- WANs-Wide Area Networks
- Mathematics
- Network Infrastructures and Topologies
- Office Wiring
- Optical Wiring
- Safety
- Test Equipment
- Troubleshooting
- Transmission Service Providers
- Wireless Telephony

Radar Electronics Technician (RAD)

The ETA-I competency requirements for Radar Electronics Technician (RAD) are:
- Block Diagrams & Schematics
- Components
- Cabling and Antennas
- Hand Tools & Soldering
- Mathematics
- Amplifiers
- Radar Transceivers
- Interfacing
- Satellite, Wireless, and Data Communications
- Computers and Digital Concepts
- Software – Programming
- Troubleshooting
- People Relations

Description, Continued

Certified Audio/Video Distribution Technician (AVD)

The ETA-I competency requirements for Certified Audio/Video Distribution Technician (AVD) are:

- Small Dish Satellite Systems Basic Concepts
- Operation
- Installation Procedures
- Troubleshooting
- Basic Telephone System Concepts
- Operation and Connection
- Fiber Optics Concepts
- Coaxial Cabling Concepts
- In Home Wiring Principles
- Signal Measurement and Distribution Components
- Antenna Theory
- Surround-Sound Systems
- Test Equipment and Tools
- Cabling, Installation and Hardware
- LNBs and dual LNBFs
- TV and Radio Channel Concepts
- Telephone, Satellites, and Antennas Grounding Requirements
- DVD & HDTV Theory, Operation, and Connections
- Audio System Wiring
- Amplifiers
- Closed Circuit Monitor Cabling
- Audio/Video Overdrive Systems
- People Relations

Description, Continued

Certified Customer Service Specialist (CSS)

The ETA-I competency requirements for Certified Customer Service Specialist (CSS) are:

- Customer Service Relationships
- World Class Service
- Objectives of Service
- Telephone Techniques
- Interpersonal Relationships
- Safety
- Record Keeping
- Pride and Company Loyalty
- Teamwork
- Emotions, Respect, and Ethics
- Dependability
- Policies, Perceptions, and Personalities

Certified Electronic Commerce Technician (CECD)

The ETA-I competency requirements for Certified Electronic Commerce Technician (CECD) are:

- Basic TCP/IP Networking
- Basic Windows NT Server Administration
- HTML and Web Design
- Web Programming and Javascript
- Web Server Technologies
- SQL & SQL Server
- Active Server Pages and Database Connectivity
- Internet Security and Disaster Planning
- E-Business and E-Commerce Environment

NOTE: The ETA-I competency requirements are broken into information objectives, or what the candidate should know, and functional objectives, or what the candidate should be able to do. Visit ETA-I's web site for detailed description of competencies.

Description, Continued

FCC Commercial Examination

FCC Commercial Examination

ETA-I has been selected by the FCC to administer FCC Commercial License Examinations. The following exams offered are:

- MR - Marine Radio Operator's Permit
  - Element 1, Term 5 years
- GROL – General Radiotelephone Operator's License
  - Elements 1 and 3, Term Life
- GMDSS Radio Operator's License
  - Elements 1 and 7, Term 5 years
- GMDSS Radio Maintainer's License
  - Elements 1, 3, and 9, Term 5 years
- Third Class Radiotelegraph Operator's Certificate, Term 5 years
- Second Class Radiotelegraph Operator's Certificate, Term 5 years
- First Class Radiotelegraph Operator's Certificate, Term 5 years
- Ship Radar Endorsement
  - Element 8

NOTE: Visit ETA-I's web site for detailed element information.

FCC Practice Exams

The candidate can view and practice GROL and GMDSS exams online at Tech-Service.Net's online FCC GROL and GMDSS License Tests Question Pool.

Examination Times

Examination Time Limits

The ETA-I and FCC examination time limits are:
- CET Exam
  - Associate – 2-hour multiple-choice exam.
  - Journeyman – 3-hour multiple-choice exam plus one journeyman option.
  - Senior – 3-hour multiple-choice exam plus journeyman option.
  - Master – 4-hour multiple-choice exam plus 6 journeyman options.
- FCC Exam – 4-hours

Calculators

Calculator Use

Examinees may use a **<u>basic calculator</u>** with no electronic formulas during the examination.

Program Assistance and Materials

Questions

Contact ETA-I with questions about:
- Qualifications
- Fees
- Educational requirements, or
- Any other matter related to the certification program

Obtaining Program Materials

Brochures and pamphlets providing a wide range of information concerning ETA-I and its programs may be obtained by contacting ETA-I directly at:

Either	Or
ETA-I Dick Glass, President 5 Depot Street Greencastle, IN 46135 Phone: (765) 653-8262 Toll Free: (800) 288-3824	Teresa Maher Vice President 5 Depot Street Greencastle, IN 46135 Phone: (765)-653-4301 Toll Free: (800) 288-3824

Ordering

Ordering Examinations

When ordering ETA-I examinations, the TCO should
- Use official letterhead stationery
- Indicate the DANTES ID number
- Indicate the category of examinations to be administered.

Fees

Fees

The TCO collects fees at the time of test administration. Certification fees are included in the examination fee.

Area of Certification Examination	Fee
Associate	$ 60
Journeyman Electronics Technician	$ 75
Senior Electronics Technician	$100
Master Electronics Technician	$150
First Retake	Free
Fiber Optics Installer	$150
CST – CNCT	$ 75
CNST	$100

Administration

Military Administration

DANTES TEST CENTERS MAY ADMINISTER THE ETA-I CERTIFICATION EXAMINATION TO ELIGIBLE ACTIVE DUTY MILITARY AND RESERVE COMPONENT PERSONNEL ON AN UNFUNDED (EXAMINEE PAYS) BASIS UNLESS EXISTING MILITARY REGULATIONS PROVIDE OTHERWISE.

Administration, Continued

Civilian Administration   DANTES test centers may administer the ETA-I certification examination to the following civilians on an **UNFUNDED (EXAMINEE PAYS) AND SPACE-AVAILABLE BASIS** according to local command policy and service regulations:

- Retired military personnel
- Military family members
- Veterans, and
- U.S. federal employees

Examination Scoring

Examination Scoring   TCOs should immediately forward completed examinations to ETA-I for scoring.

Refunds

Refunds   Examination and processing fees are not refundable after the examinee takes the examination and submits the fees to the TCO.

Retesting

Retesting   ETA-I allows one free retest on any CET examination 30 days after the initial examination, for up to 1 year. FCC examinations require a fee each time an examination is administered.

Certification

Certification	Candidates who successfully complete examination and eligibility requirements for each level are awarded certification. Names are established in a permanent database and published in ETA-I's monthly newsmagazine.

Problems

Problems	If applicants do not receive the following in a timely manner, contact ETA-I: • Applications • Descriptive information • Examination materials • Examination scores, and/or • Certificates

Security

Test Loss or Compromise	Refer to Part I of the *DANTES Examination Program Handbook (DEPH)* for complete instructions if there is an ETA-I test loss or compromise. Contact DANTES <u>immediately</u> and refer to specific Service regulations for complete procedures. DANTES address is:

DANTES   **Phone: (850) 452-1360**
Code 20F   **DSN: 922-1360**
6490 Saufley Field Road   **Fax: (850) 452-1161**
Pensacola, FL 32509-5243

WEB Pages

DANTES Web Address

Access the DANTES web pages at http://www.dantes.doded.mil.

ETA-I Web Address

Access the ETA-I web page at http://www.eta-sda.com/.
Contact ETA-I via E-mail at eta@tds.net

DANTES E-mail Address

The DANTES Certification Program E-mail address is certprog@voled.doded.mil.